

EXHIBIT 14

Contains Highly Confidential AEO and Source Code Materials

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

GOOGLE LLC,

Plaintiff

v.

SONOS, INC.,

Defendant.

CASE NO. 3:20-cv-06754-WHA

Related to CASE NO. 3:21-cv-07559-WHA

**OPENING EXPERT REPORT OF DR. DAN SCHONFELD REGARDING U.S. PATENT
NO. 10,848,885 AND U.S. PATENT NO. 10,469,966**

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D. Bose

218. I understand that the Bose® FreeSpace® Owner’s Guide (the “FreeSpace Owner’s Guide”) bears a publication date of July 10, 2004, and was publicly available at least as of May 6, 2006, making it prior art under at least 35 U.S.C. § 102(a).

219. According to the FreeSpace Owner’s Guide publication, the FreeSpace® installer interface allowed the user to automate the system by creating scheduled events to control how selected zones and subzones are invoked at predetermined times:

in the art. SONOS-SVG2-00026305; SONOS-SVG2-00027458; SONOS-SVG2-00033695; SONOS-SVG2-00113386; SONOS-SVG2-00113396; SONOS-SVG2-00115564; SONOS-SVG2-00115732; SONOS-SVG2-00115859; SONOS-SVG2-00115861; SONOS-SVG2-00115863; SONOS-SVG2-00115950; SONOS-SVG2-00116070; SONOS-SVG2-00117229; SONOS-SVG2-00121763; SONOS-SVG2-00123276; SONOS-SVG2-00123706; SONOS-SVG2-00128331; SONOS-SVG2-00128456; SONOS-SVG2-00128464; SONOS-SVG2-00133429; SONOS-SVG2-00133704; SONOS-SVG2-00133706; SONOS-SVG2-00134611; SONOS-SVG2-00222223; SONOS-SVG2-00226911. [REDACTED]

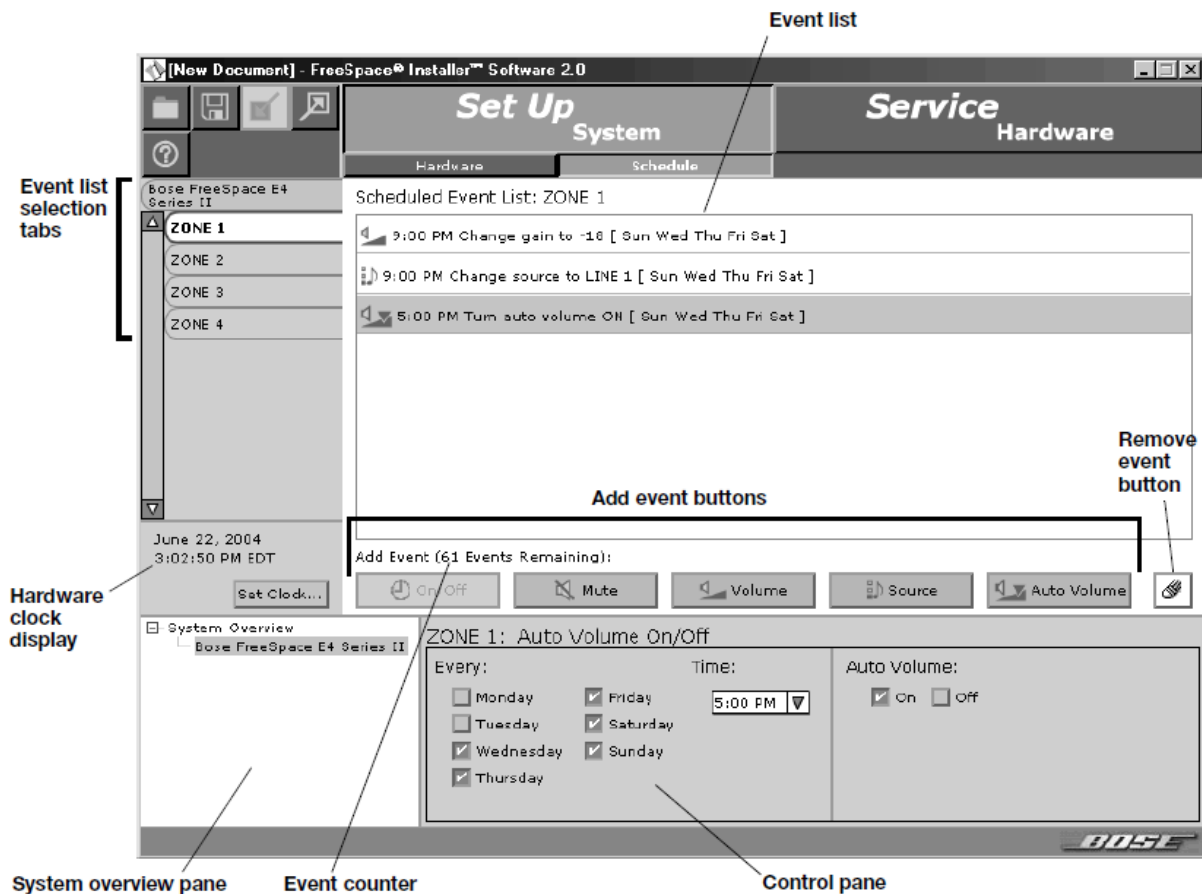
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].

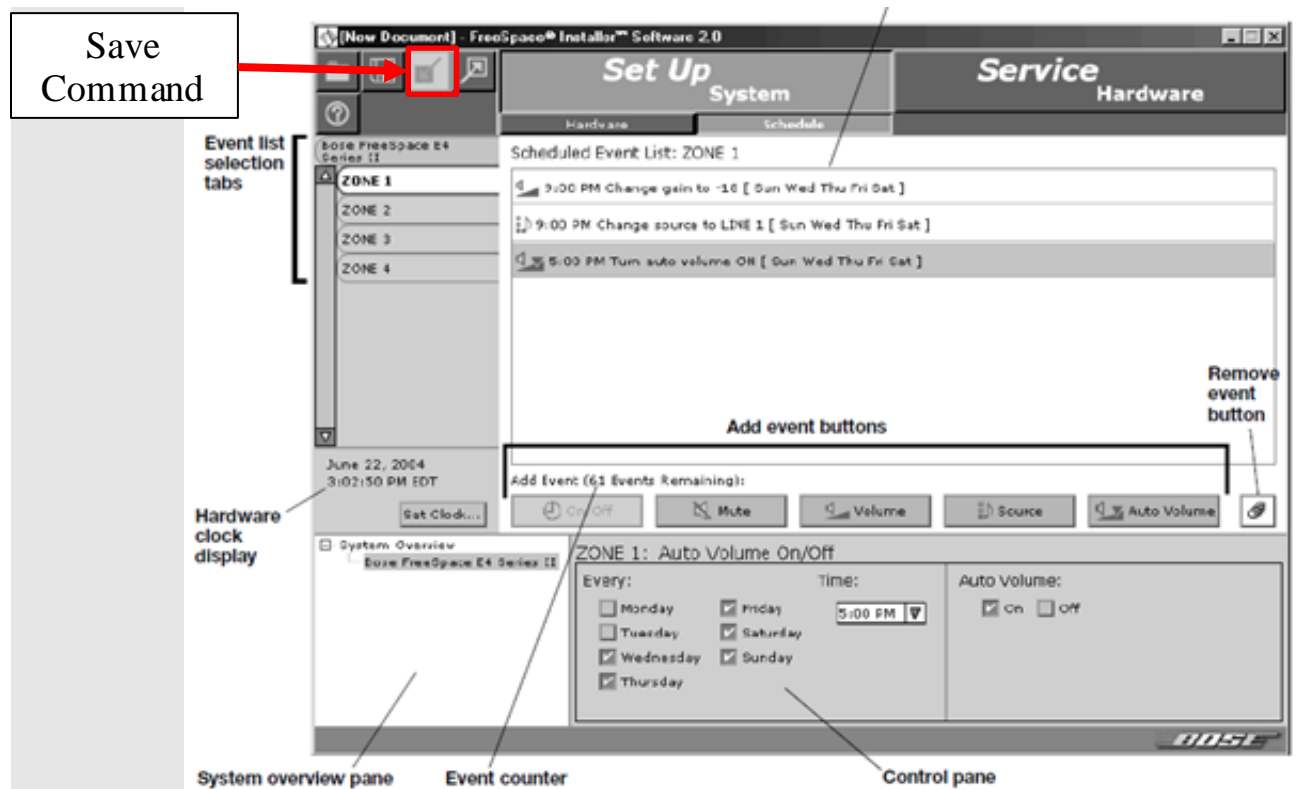
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BOSE_SUB-0000056; BOSE_SUB-0000062 at -76, -100-103.

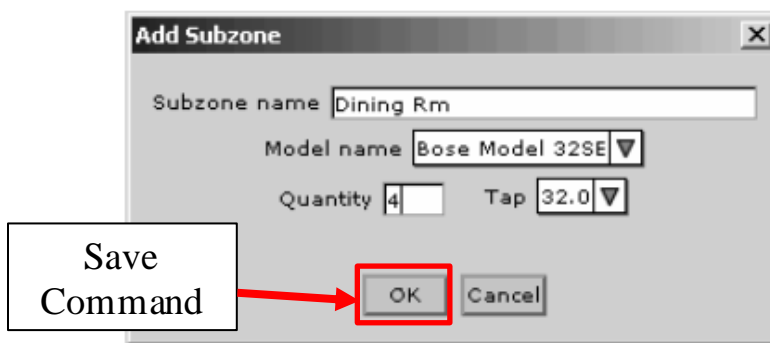
220. These events and particular subzone speaker groupings “are saved to the E4 unit” when a user clicks the save button, as shown in the following figures. BOSE_SUB-0000101.

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Id. (annotated).

221. Additionally, a user can click “OK” after creating a subzone, as shown in the following figure, to add the subzone to the table (where it can later be edited or deleted, and thus is saved). BOSE_SUB-0000108.



BOSE_SUB-0000062 (dated 2004) at -107, -108, -110.

222. The FreeSpace Guide is analogous to the '885 patent because it is in the same field

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of endeavor, “controlling or manipulating a plurality of multimedia players in a multi-zone system.” ’885 patent at 1:30-34. For example, the FreeSpace Guide, like the ’885 patent describes that the Bose “E4 system [that] has four amplifier output channels which can be configured for different zones” of speakers and manipulating the various zones of players by configuring “scheduled events” to activate playback according to particular settings at particular times. BOSE_SUB-0000074; -101; -105-107. Moreover, the FreeSpace Guide describes configuring “subzones” of speakers within each zone. *Id.*, -111-112. The FreeSpace Guide is also reasonably pertinent to the problem to be solved by the ’885 patent, “dynamic control of the audio players as a group.” For example, the FreeSpace Guide explains that a user can configure “scheduled events” that control the on/off status for a zone as well as a volume, source, and time/day of activation—or dynamic control of the groups of speakers. *Id.*

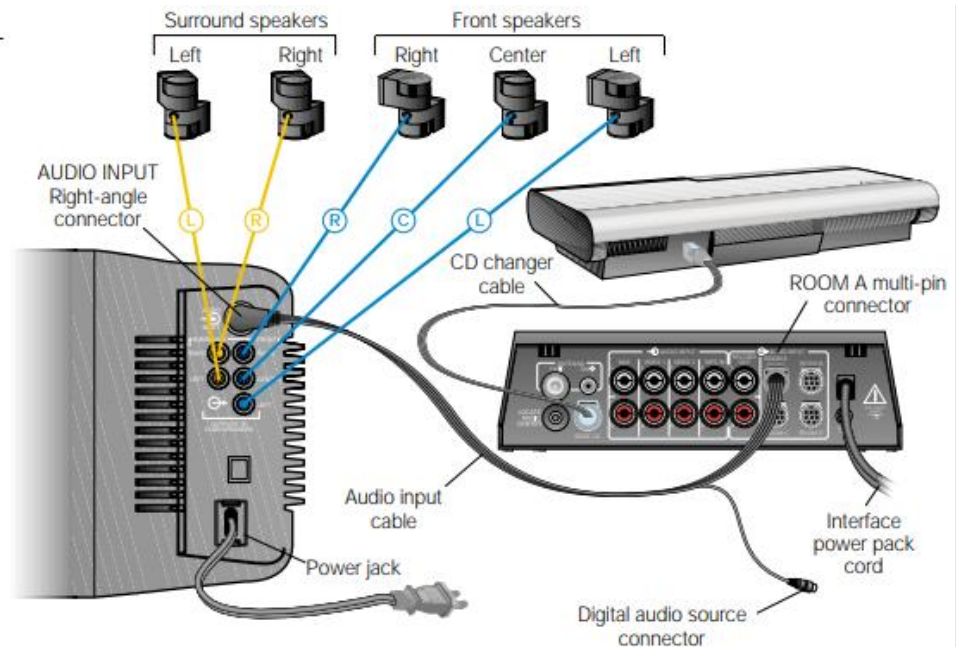
223. I understand that the Bose Lifestyle 50 System Owner’s Guide (the “Lifestyle 50 Guide”) bears a publication date of October 17, 2001, and was publicly available at least as of 2003, making it prior art under at least 35 U.S.C. § 102(a). BOSE_SUB-00000001; https://www.bose.com/en_us/support/products/bose_home_theater_support/bose_5_speaker_home_theater_support/l50.html (noting that the Lifestyle 50 system was sold from 1970-2003); <http://www.audioreview.com/product/other/mini-systems/bose/lifestyle-50.html> (2003 reviews).

224. According to the Lifestyle Owner’s Guide, the product allowed a user to create a multi-room interface and direct digital audio to that interface:

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Figure 8

Speakers, CD changer, and multi-room interface connections



BOSE_SUB-0000012.

225. The Lifestyle system includes a touch sensitive controller interface that allows the user to wake up the system as well as selecting sources of media. Available settings include adjusting the volume, muting the system, and using a sleep timer. BOSE_SUB-0000021.

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Turning the system on

1. Touch the music center screen to wake up the display (Figure 18). The last display that you used appears on the screen.
2. Press ON/OFF to turn the system on to the last source used, or press a SOURCE button (FM, AM, CD, VIDEO 1, VIDEO 2, TAPE, AUX) to select and turn on that source (Figure 19).

Note: Initially, the AM and FM sources turn on in 2-speaker mode (front right and front left). All other sources initially turn on in 5-speaker mode. To change the speaker settings, see "Selecting the number of speakers" on page 22.

Figure 18

Waking up the display



Figure 19

Turning on a source



BOSE_SUB-000020.

Using the Personal™ music center display

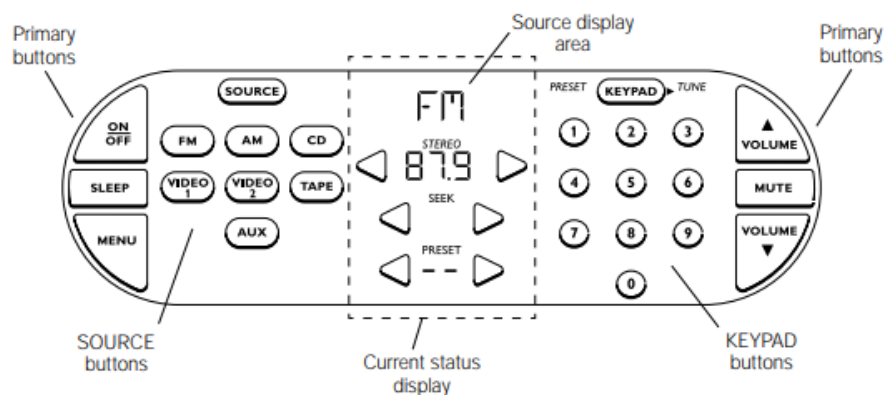
The music center display provides information on the system functions. The display offers different combinations of buttons to provide control of the function you are using. Sometimes an item on the display will flash to provide information about a system function. When an item flashes faster, it is alerting you to a needed action.

Using the primary buttons

The primary buttons (ON/OFF, SLEEP, MENU, VOLUME, and MUTE) are located at the left and right sides of the display.

Figure 21

The display showing the primary buttons, SOURCE buttons, and KEYPAD buttons



BOSE_SUB-0000022.

226. The system also includes presets, as shown below:

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PRESETS

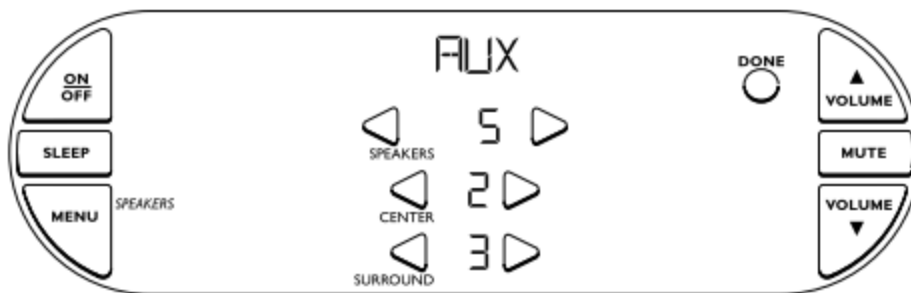
You can preset a maximum of 25 FM and 25 AM radio stations. In addition to using the **PRESETS** menu, you can set presets directly from the **KEYPAD** buttons. See pages 27-28.

BOSE_SUB-0000023.

227. The system also allows the user to select the number of speakers to control together as a group, such as 5 speakers or two speakers. “Speaker settings are remembered for source and room,” and those settings can include volume levels as well as center and surround sound settings:

Selecting the number of speakers

Initially, the AM and FM sources turn on in 2-speaker mode (front right and front left). All other sources initially turn on in 5-speaker mode. To change the speakers setting, press the **MENU** button until **SPEAKERS** is displayed (Figure 23). Use the ◀ or ▶ arrow buttons to change speaker mode from 5 to 3 or 2. Speaker settings are remembered for source and room.



Adjusting center and surround levels

The **SPEAKERS** selection display (Figure 23) also allows you to adjust the volume levels of the center and surround speakers. At the factory, these levels are set to zero. To adjust them, press the **MENU** button until **SPEAKERS** is displayed. Then use the ◀ or ▶ arrow buttons to adjust the levels.

- The **CENTER** level can be adjusted to soften or emphasize center speaker image.
- The **SURROUND** level can be adjusted to move the surround information forward in the room or further to the rear.

The system remembers the center and surround level settings for the room in which they were adjusted.

BOSE_SUB-0000024.

228. The Lifestyle system allows a user to output audio to at least four different “rooms” as shown below, which are identified as Room A, B, C, and D:

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Connecting additional rooms

Follow the placement guidelines for the Bose® powered speakers that you plan to connect. Then review your plan for how to connect these speakers to the multi-room interface in your primary room. If you have questions or need extension cables to complete the connections, call Bose Customer Service at the numbers listed on the back inside cover of this owner's guide.



CAUTION: Make sure all components are unplugged from the power outlet before you begin hooking up additional speakers.

Connect the audio input cable from your additional powered speakers to the selected ROOM jack on the back of the multi-room interface.

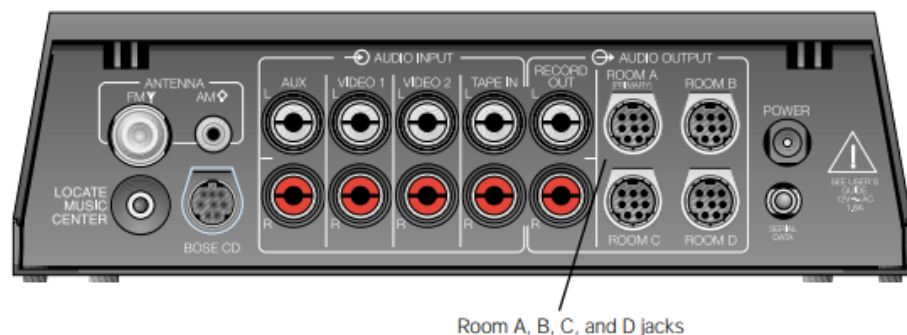
1. Plug the small black multi-pin connector (flat side facing up) into the jack marked ROOM B, C, or D on the back of the interface.
2. Follow the instructions that came with your speakers for connecting the cable to the speakers.



Note: Be sure that each connector is inserted completely into each jack.

Figure 47

ROOM jacks on the multi-room interface



BOSE_SUB-0000042.

229. The Lifestyle system describes controlling music among the four rooms, and the entire house, below. It allows controlling audio sources for up to four rooms. The Room button lets a user control a single room or two or more rooms sharing an audio source. The House button controls all of the connected rooms as one. The manual notes that an unboxed room shows that the room is sharing a source with the primary room, and any change of the audio playing will affect all rooms sharing the source.

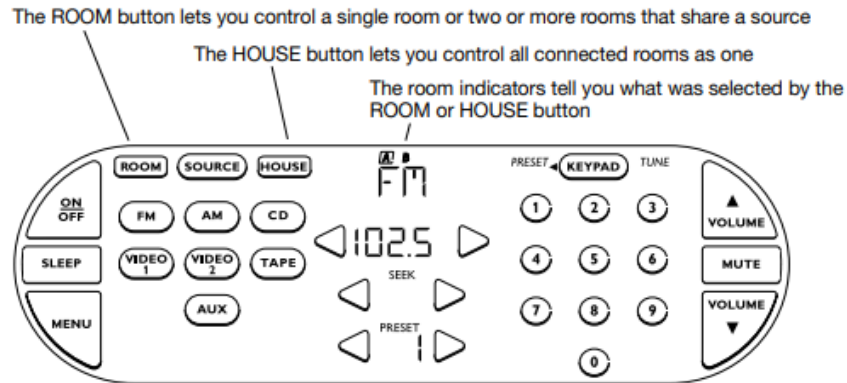
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Operating in more than one room

Your Lifestyle® 50 system can control up to four sets of Bose® powered speakers, allowing your family to enjoy different audio sources (CD, radio, TV, etc.) in up to four rooms. These rooms are referred to as room A, B, C, and D, with room A being the primary room (the one used for a one-room system). If two or more rooms are connected to your system, the Personal™ music center displays ROOM and HOUSE buttons, and room indicators (A, B, C, and/or D). Figure 48 shows an example display for a two-room system.

Figure 48

Example display for a two-room system

**Understanding the room indicators**

- ☒ A boxed letter indicates the presently-selected room or rooms. The selected room is affected by any source changes, or any change you make using the VOLUME, MUTE, ON/OFF, or SLEEP buttons.
- ☐ An unboxed letter indicates a room listening to a **shared source**. A shared source is one that is playing in the controlled room as well as in up to three additional rooms. If you change the radio station, CD track, etc., of the shared source, the change affects all rooms sharing this source. However, you cannot change sources for all affected rooms at the same time. The VOLUME, MUTE, ON/OFF, and SLEEP buttons only affect the boxed room(s).
- ☐ An empty box appears for each connected room when you press the HOUSE button. When you change the volume in the HOUSE mode, the numerical level appearing on the display does not represent the actual volume level in all connected rooms. It only represents the actual volume in rooms represented by a boxed letter.

BOSE_SUB-0000043.

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Using the ROOM button

The ROOM button allows you to select any connected room and control any sound source you want to hear in that room. Each time you press the ROOM button you can transfer control from one room to the next in A-B-C-D order. The room indicators on the display tell you what is currently selected. Rooms listening to a shared source can be linked and controlled as one room.

Turning on different sources in more than one room

Let's say you have a two-room system (rooms A and B) and the entire system is off. To turn on a different source in each room:

1. Wake up the Personal™ music center.
2. Press the ROOM button until the room indicator **A** is displayed. Press a source button, such as VIDEO 1, to turn on the system and listen to your DVD player in room A. Adjust the volume to the desired level.
3. Press the ROOM button again. The room indicator **B** is displayed. Press a different source button, such as CD, to listen to a CD in room B. Again, adjust the volume to the desired level.
4. Press the ROOM button again and notice that the room indicator **A** is displayed. You are controlling room A once again and the displays indicates that the VIDEO 1 source is on.

BOSE_SUB-0000044.

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Setting up a shared source

Now, let's say the system is already on and you want to play the FM radio in rooms A and B:

1. Wake up the Personal music center.
2. Press the ROOM button until the room indicator **[A]** is displayed. Press the FM source button and adjust the volume to the desired level for room A.
3. Press the ROOM button again to select room **[B]**. Press the FM source button and adjust the volume to the desired level for room B. Now, the indicators **A [B]** are displayed.
4. Press the ROOM button again. The indicators **[A] [B]** appear on the display indicating that you can control these two rooms together. Any button command given now (SOURCE, VOLUME, MUTE, ON/OFF, SLEEP) is applied to both rooms.



Note: Remember that there are limits to using different sources in different rooms. With one tuner, the system cannot play one radio station in one room and another radio station in another. Similarly, with one CD changer, the system cannot play two different CDs at the same time.

Linking rooms for common control

There are two ways to link rooms in order to control them as one.

- Set up a shared source in two or more rooms and select them together using the ROOM button. See "Setting up a shared source" above.
- Link all connected rooms using the HOUSE button. See "Using the HOUSE button" on page 43.

Returning to single-room control

After you have gained control of multiple rooms using the ROOM button, you can use the ROOM button again to gain control of a single room. Press ROOM until the room you want is displayed (**[A]**, **[B]**, **[C]**, or **[D]**). Control that room as desired.


Id.

230. In House mode, the users presses the House button before each command to apply that command to all rooms, as described below:

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Using the *HOUSE* button

Using the *HOUSE* button, you can link all rooms together and control them as one. When you press the *HOUSE* button, an empty box indicator is displayed for each connected room. Any button pressed after that (any source button, *VOLUME*, *MUTE*, or *SLEEP*) affects every room. When you are done listening you can press *OFF* to turn off the entire system.

 **Note:** *If you do not press any additional buttons after pressing *HOUSE*, pressing *HOUSE* again cancels *HOUSE* mode.*

Press the *HOUSE* button before each command to apply that command to all rooms:

Press ...	To do this ...
<i>HOUSE</i> then a source	Play the selected source in all connected rooms.
<i>HOUSE</i> then <i>VOLUME</i> ▲▼	Adjust the volume up or down by the same amount in all rooms that are on, or all connected rooms if they are all off. The system remembers the differences among the original room volume settings.
<i>HOUSE</i> then <i>MUTE</i>	Silence all connected rooms that are on, even if any were previously muted individually. To cancel this command, press <i>HOUSE</i> then <i>MUTE</i> again. Any rooms that were muted before this command was given stay silent until individually unmuted. If you unmute an individual room after it was muted by a <i>HOUSE</i> - <i>MUTE</i> command, the other rooms remain silent until each one is unmuted individually. Pressing <i>HOUSE</i> then <i>VOLUME</i> ▲ unmutes all muted rooms.
<i>HOUSE</i> then <i>SLEEP</i>	Set the <i>SLEEP</i> timer for all rooms that are on. The <i>SLEEP</i> time selected applies to all rooms that are on even if they are playing different sources. If the <i>SLEEP</i> timer was already set in one or more rooms, the display shows the longest time already set. You can accept this time or change it for all the rooms. To cancel the <i>HOUSE</i> - <i>SLEEP</i> command, press <i>HOUSE</i> , <i>SLEEP</i> , <i>CLEAR</i> , and then <i>DONE</i> .
<i>HOUSE</i> then <i>OFF</i>	Turn off the entire system.

 **Note:** *Instead of setting the whole house to one sleep time, you can set different sleep times for individual rooms by using the *ROOM* button to select each room and setting *SLEEP*. When two or more rooms are linked, adjusting the *SLEEP* time affects all linked rooms (indicated by boxed letters).*

BOSE_SUB-0000045.

231. The Lifestyle system can also be expanded by using more than one personal music center:

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Using more than one Personal™ music center

If you have a multi-room system, you can add additional music centers for some or all of the connected rooms. Each multi-room interface can be controlled by a maximum of four music centers. Each music center can control up to four rooms.

To add a new music center to your system, follow the setup instructions on page 17. Be sure to install the batteries and turn it on for the first time close to the multi-room interface to allow the new music center to set up a radio frequency link with your system. If the multi-room interface is not plugged in or the music center is out of range, the display indicates *NO RESPONSE*.

Id.

232. The Lifestyle 50 system is analogous to the '885 patent because it is in the same field of endeavor, “controlling or manipulating a plurality of multimedia players in a multi-zone system.” '885 patent, at 1:32-35. For example, the Lifestyle 50 system, like the '885 patent describes using different rooms or zones, as well as grouping all zones in the house together, for individual or group synchronous playback. The Lifestyle 50 system is also reasonably pertinent to the problem to be solved by the '885 patent, “dynamic control of the audio players as a group.”

E. Millington

233. I understand that Canadian Patent No. 2 533 852 (“Millington”) was published on February 10, 2005 making it prior art under at least 35 U.S.C. § 102(b).

234. Millington describes a networked audio system for synchronizing playback by one or more synchrony groups. Millington, Abstract; Fig. 1, 3, ¶2; 4, ¶1. Each synchrony group includes one or more zone players that play the same audio program synchronously. *Id.*, 6, ¶3. The networked audio system includes a user interface module for the user to dynamically establish and modify different synchrony groups. *Id.*, 7. The user interface module includes a display of status information, such as the name of the audio track currently being played, the names of upcoming tracks, the identifier of the zone player currently operating as the master device, and the identifiers of the zone players currently operating as slave devices. *Id.*, 11, ¶3.

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discussed *supra*, the claimed embodiments show that the zone players are networked together and communicate with each other to establish synchronous playback (i.e., configured to coordinate with at least one other zone player). *E.g.*, 5:64-6:5 (“The wireless interface 216, also referred to as a RF interface, provides network interface functions by a wireless means for the zone player 200 to communicate with other devices in accordance with a communication protocol (such as the wireless standard IEEE 802.11a, 802.11b or 802.11g). The wired interface 217 provides network interface functions by a wired means (e.g., an Ethernet cable). In one embodiment, a zone player includes both of the interfaces 216 and 217, and other zone players include only a RF or wired interface. Thus these other zone players communicate with other devices on a network or retrieve audio sources via the zone player.”); 8:12-22 (“As all the zone players are coupled on a network, the received signals in one zone player can cause other zone players in the group to be synchronized so that all the zone players in the group playback an identical audio source or a list of identical audio sources in a timely synchronized manner. Similarly, when a user increases the audio volume of the group from the controller, the signals or data of increasing the audio volume for the group are sent to one of the zone players and causes other zone players in the group to be increased together in volume and in scale.”); 11:55-59 (“In one embodiment, data including the parameters is transported from a member (e.g., a controller) to other members in the scene so that the players are caused to synchronize an operation configured in the scene.”).

D. Claim 1 Is Invalid Based On Bose Lifestyle in view of General knowledge of a POSITA, the Sonos Forums, Rajapaske, Nourse or Millington.

855. Bose Lifestyle 50 System (“Bose Lifestyle”) was publicly available, on sale, offered for sale, and described in printed publications both before the critical date (i.e., prior to September 12, 2005), before the alleged conception date (i.e., prior to December 21, 2005), and prior to the patent filing date on September 12, 2006. The features offered in that system were

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substantially the same during each of those time frames, as discussed below. *See also*, BOSE_SUB-0000602; BOSE_SUB-0000658; BOSE_SUB-0002259

856. The capabilities and features of the Bose Lifestyle are apparent from documents that Bose has made available to the public and produced in this case, the products themselves, technical documentation, public documentation regarding that system, professional and customer reviews, and other sources discussed below. BOSE_SUB-00000001-2610.

857. I understand that Dr. Almeroth asserts that I rely “on disclosures in various materials related to other Bose products, namely, Bose Lifestyle SA-2 and SA-3 Amplifiers and their ability to be added to a Bose link media center of a Bose Lifestyle® 18 series II, 28 series II, 38 or 48 home entertainment system; Bose link communication protocol; and Bose FreeSpace EF Series II Business Music System. Dr. Schonfeld has not explained how such disclosure is relevant to the operation of the actual Bose Lifestyle 50 System upon which he claims to rely for invalidity.” These products, however, are all Bose products relating playing audio on speakers and thus are all part of the same endeavor. For example, SA-2 and SA-3 Amplifiers are both part of the “Lifestyle” family to which the Bose systems belongs. *See e.g.*, BOSE_SUB-0000274; BOSE_SUB-0000361. I also note, that other than his conclusory opinion, Dr. Almeroth does not provide any evidence that the above-mentioned products are incompatible.

858. In my opinion, Claim 1 is rendered obvious based on the Bose Lifestyle in view of the general knowledge of a POSITA, the Sonos Forums, Nourse, Millington, and Rajapakse, as described below. Below, I analyze each element of Claim 1 and demonstrate why that claim is invalid.

35. Limitation 1 (preamble): “A first zone player comprising:”

859. To the extent the preamble is limiting, Bose Lifestyle discloses the preamble in my opinion. For example, the Bose Lifestyle was publicly available no later than October 17, 2001.

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The Bose Lifestyle player corresponds to the claimed Zone Player and it provides the ability to stream digital music from a controller. It can plug into any home theater stereo or speakers with digital and analog outputs, and allows a user to synchronize multiple players for whole house audio.

Thank you for purchasing the Bose® Lifestyle® 50 system. Years of research lie behind this complete audio home entertainment system – the most advanced home theater system from Bose. Technological innovations that make the Lifestyle® 50 system unique include the Bose Personal™ music center, which places all system operations in the palm of your hand, and tiny Jewel Cube® speakers.

The interactive Personal music center is a clear departure from convention, communicating with the system through a two-way radio data link. The result for you is full control of this entertainment system as you move about your home.

The Bose Jewel Cube speakers are also far from conventional. Proprietary technologies ensure that these tiny speakers not only fill a room with sound, but also reproduce it more accurately than traditionally designed loudspeakers.

The other elements of the Lifestyle® 50 system are designed to be hidden from view:

- The elegant Lifestyle® CD changer, designed to give you flexibility in where it is placed
- The hideaway powered Acoustimass® module that delivers the rich, full, lifelike bass
- The Bose multi-room interface, with four independent audio outputs that allow you to enjoy Bose sound throughout your home.

BOSE_SUB_0000006.

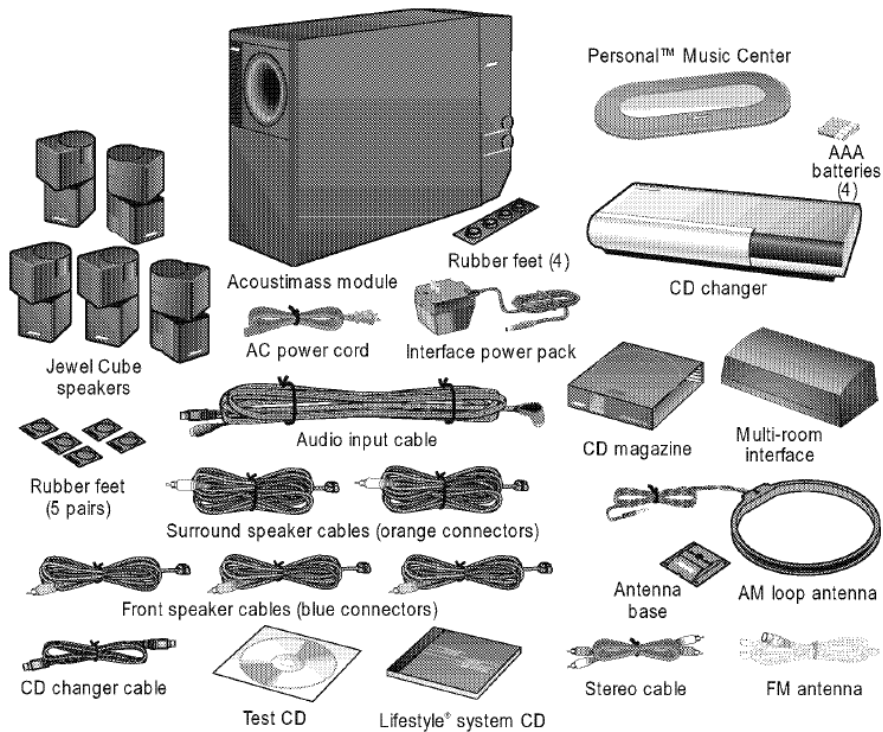
860. As shown below, the Bose Lifestyles connects the controller (for example a computer) and a speaker system.

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Figure 1

What comes with your Lifestyle® 50 system:

- Personal music center
- CD changer
- Multi-room interface
- Interface power pack*
- 5 Jewel Cube® speakers
- 5 speaker cables
- Acoustimass module
- AC power (mains) cord*
- 14 self-adhesive rubber feet (4 for the module and 5 pairs for the Jewel Cube speakers)
- Audio input cable
- CD changer cable
- Stereo cable
- 4 AAA batteries
- FM antenna
- AM loop antenna
- AM antenna base
- CD magazine
- Lifestyle® system CD
- Test CD



* Power cord and pack shown above are USA/Canada/Japan versions.
Dual voltage systems include 1 power cord, 1 adapter, and 2 power packs.
The power cords and packs for Europe, UK/Singapore, and Australia are shown below.



Id.

861. Further, the Bose LifeStyle allows a user to select a location for the multi-room interface.

Figure 5

The multi-room interface

**Multi-room interface**

Select a location for the multi-room interface. It may be placed out of sight if you like.

1. Place the multi-room interface within 30 feet (9.1 m) of the Acoustimass module (the length of the audio input cable).
2. Place the multi-room interface close enough to the sound sources (TV, VCR, DVD, etc.) to allow for cable length. If you need additional audio and/or video cables to connect all of your components, see your dealer or call Bose® Customer Service.

BOSE_SUB_00000010.

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Operating a Multi-Room Lifestyle® 50 System**Connecting additional rooms**

Follow the placement guidelines for the Bose® powered speakers that you plan to connect. Then review your plan for how to connect these speakers to the multi-room interface in your primary room. If you have questions or need extension cables to complete the connections, call Bose Customer Service at the numbers listed on the back inside cover of this owner's guide.

CAUTION: Make sure all components are unplugged from the power outlet before you begin hooking up additional speakers.

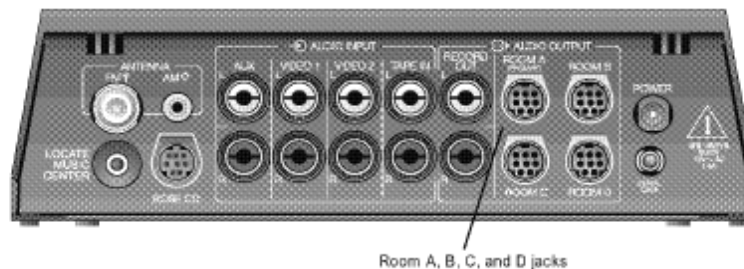
Connect the audio input cable from your additional powered speakers to the selected ROOM jack on the back of the multi-room interface.

1. Plug the small black multi-pin connector (flat side facing up) into the jack marked ROOM B, C, or D on the back of the interface.
2. Follow the instructions that came with your speakers for connecting the cable to the speakers.

Note: Be sure that each connector is inserted completely into each jack.

Figure 47

ROOM jacks on the multi-room interface



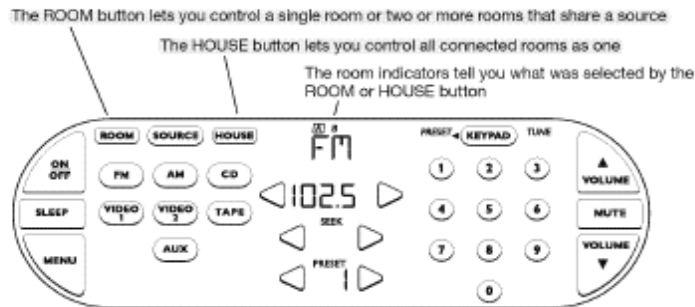
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Operating a Multi-Room Lifestyle® 50 System**Operating in more than one room**

Your Lifestyle® 50 system can control up to four sets of Bose® powered speakers, allowing your family to enjoy different audio sources (CD, radio, TV, etc.) in up to four rooms. These rooms are referred to as room A, B, C, and D, with room A being the primary room (the one used for a one-room system). If two or more rooms are connected to your system, the Personal™ music center displays ROOM and HOUSE buttons, and room indicators (A, B, C, and/or D). Figure 48 shows an example display for a two-room system.

Figure 48

Example display for a two-room system

**Understanding the room indicators**

- ☒ A boxed letter indicates the presently-selected room or rooms. The selected room is affected by any source changes, or any change you make using the VOLUME, MUTE, ON/OFF, or SLEEP buttons.
- ☐ An unboxed letter indicates a room listening to a **shared source**. A shared source is one that is playing in the controlled room as well as in up to three additional rooms. If you change the radio station, CD track, etc., of the shared source, the change affects all rooms sharing this source. However, you cannot change sources for all affected rooms at the same time. The VOLUME, MUTE, ON/OFF, and SLEEP buttons only affect the boxed room(s).
- ☐ An empty box appears for each connected room when you press the HOUSE button. When you change the volume in the HOUSE mode, the numerical level appearing on the display does not represent the actual volume level in all connected rooms. It only represents the actual volume in rooms represented by a boxed letter.

BOSE_SUB-0000043. Further, as shown below, Bose has the ability to create zone scenes using the HOUSE and ROOM buttons. These options allow users to group speakers together for synchronous playback, and also allow for playback using a single source or a shared source. For

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example, the grouping of playback speakers in at least two rooms can be considered a “first zone scene.”

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Using the ROOM button

The ROOM button allows you to select any connected room and control any sound source you want to hear in that room. Each time you press the ROOM button you can transfer control from one room to the next in A-B-C-D order. The room indicators on the display tell you what is currently selected. Rooms listening to a shared source can be linked and controlled as one room.

Turning on different sources in more than one room

Let's say you have a two-room system (rooms A and B) and the entire system is off. To turn on a different source in each room:

1. Wake up the Personal™ music center.
2. Press the ROOM button until the room indicator **[A]** is displayed. Press a source button, such as VIDEO 1, to turn on the system and listen to your DVD player in room A. Adjust the volume to the desired level.
3. Press the ROOM button again. The room indicator **[B]** is displayed. Press a different source button, such as CD, to listen to a CD in room B. Again, adjust the volume to the desired level.
4. Press the ROOM button again and notice that the room indicator **[A]** is displayed. You are controlling room A once again and the displays indicates that the VIDEO 1 source is on.

Setting up a shared source

Now, let's say the system is already on and you want to play the FM radio in rooms A and B:

1. Wake up the Personal music center.
2. Press the ROOM button until the room indicator **[A]** is displayed. Press the FM source button and adjust the volume to the desired level for room A.
3. Press the ROOM button again to select room **[B]**. Press the FM source button and adjust the volume to the desired level for room B. Now, the indicators **A [B]** are displayed.
4. Press the ROOM button again. The indicators **[A] [B]** appear on the display indicating that you can control these two rooms together. Any button command given now (SOURCE, VOLUME, MUTE, ON/OFF, SLEEP) is applied to both rooms.

Note: Remember that there are limits to using different sources in different rooms. With one tuner, the system cannot play one radio station in one room and another radio station in another. Similarly, with one CD changer, the system cannot play two different CDs at the same time.

Linking rooms for common control

There are two ways to link rooms in order to control them as one.

- Set up a shared source in two or more rooms and select them together using the ROOM button. See "Setting up a shared source" above.
- Link all connected rooms using the HOUSE button. See "Using the HOUSE button" on page 43.

Returning to single-room control

After you have gained control of multiple rooms using the ROOM button, you can use the ROOM button again to gain control of a single room. Press ROOM until the room you want is displayed (**[A]**, **[B]**, **[C]**, or **[D]**). Control that room as desired.

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Id. at 43.

Using the HOUSE button

Using the HOUSE button, you can link all rooms together and control them as one. When you press the HOUSE button, an empty box indicator is displayed for each connected room. Any button pressed after that (any source button, VOLUME, MUTE, or SLEEP) affects every room. When you are done listening you can press OFF to turn off the entire system.

Note: *If you do not press any additional buttons after pressing HOUSE, pressing HOUSE again cancels HOUSE mode.*

Press the HOUSE button before each command to apply that command to all rooms:

Press ...	To do this ...
HOUSE then a source	Play the selected source in all connected rooms.
HOUSE then VOLUME ▲▼	Adjust the volume up or down by the same amount in all rooms that are on, or all connected rooms if they are all off. The system remembers the differences among the original room volume settings.
HOUSE then MUTE	Silence all connected rooms that are on, even if any were previously muted individually. To cancel this command, press HOUSE then MUTE again. Any rooms that were muted before this command was given stay silent until individually unmuted. If you unmute an individual room after it was muted by a HOUSE - MUTE command, the other rooms remain silent until each one is unmuted individually. Pressing HOUSE then VOLUME ▲ unmutes all muted rooms.
HOUSE then SLEEP	Set the SLEEP timer for all rooms that are on. The SLEEP time selected applies to all rooms that are on even if they are playing different sources. If the SLEEP timer was already set in one or more rooms, the display shows the longest time already set. You can accept this time or change it for all the rooms. To cancel the HOUSE - SLEEP command, press HOUSE, SLEEP, CLEAR, and then DONE.
HOUSE then OFF	Turn off the entire system.

Note: *Instead of setting the whole house to one sleep time, you can set different sleep times for individual rooms by using the ROOM button to select each room and setting SLEEP.*

When two or more rooms are linked, adjusting the SLEEP time affects all linked rooms (indicated by boxed letters).

Id. at 43.

862. Further, and as evidenced below, for example, Bose Lifestyle explicitly allows for multiple zones and operation.

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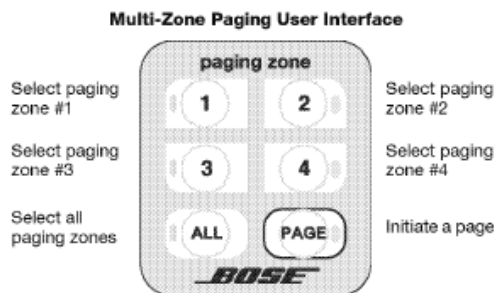
7.0 User Interface Operation

7.5 Multi-zone paging user interface operation

The Multi-zone paging user interface provides keys to select single paging zones, all paging zones and initiate a page.

Paging zones are not the same as output zones. After assigning the PAGE source to the output zones and choosing the appropriate settings in the Page Setup control pane, flashing the hardware maps the paging zone buttons accordingly.

When mapped, the paging zone **1** button will select the lowest numbered output ZONE to which the PAGE source is assigned. The paging zone **2** button will select the next lowest numbered output ZONE to which the PAGE source is assigned, and so forth.



- Press **1**, **2**, **3** or **4** to select a paging zone. A green LED flashes to indicate that the zone is selected for paging. After ending a page the LED turns off.
- Press **ALL** to select all paging zones.
- Press **PAGE** to initiate a page in systems that do not use a PTT microphone.

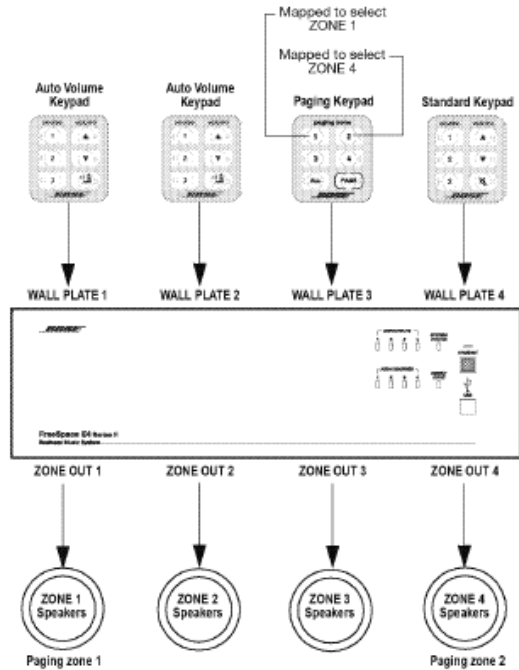
Paging User Interface Example:

- The **PAGE** source is assigned to ZONE OUT 1 and ZONE OUT 4.
- In the Page Setup control pane for ZONE 1 and ZONE 4:

Paging Type = Multi-zone

PAGE Control = Wall plate 3

- After flashing the hardware, the paging zone **1** button selects ZONE OUT 1 for paging, and the paging zone **2** button selects ZONE OUT 4 for paging.



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BOSE_SUB-0000122. *See also*, BOSE_SUB-0000361-448. As another example, as described below, Bose also allows for music playback at the dining room, bar, patio, and restrooms at a restaurant. As stated, each can be considered its own “zone.”

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Figure 1: Two-Zone System**Example System: Small Market**

The store is comprised of two zones, the main retail area and the cashier area. The main retail area receives music and paging, and operates at a fixed volume level.

The cashier area also receives music and paging, but its volume is controlled by the Auto Volume function and an Auto Volume wall plate.

		Zone 1 Retail	Zone 2 Cashier	Zone 3	Zone 4
Sources	Music	•	•		
	Paging	•	•		
Controls	Standard Wallplate	•			
	Auto Volume Wallplate		•		

**Figure 2: Four-Zone System****Example System: Restaurant**

The restaurant is comprised of four zones: dining, bar, patio, and the restrooms and lobby. All zones receive the music source, and the bar and lobby area receive paging. The bar area also can select the television audio source.

The dining and bar areas' volume is controlled by the Auto Volume function. The remaining zones, the patio and restrooms/lobby, are controlled using standard wall plate controls. A multi-zone paging interface is connected to the wall plate number four connection to provide independent paging of the two page zones.

		Zone 1 Dining	Zone 2 Bar	Zone 3 Patio	Zone 4 Entry/Restrooms
Sources	Music	•	•	•	•
	TV		•		
	Paging		•		•
Controls	Standard Wallplate			•	•
	Auto Volume Wallplate	•	•		



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BOSE_SUB-0000144

Information subject to change without notice.

863. BOSE_SUB-0000144.

864. I understand that Sonos does not dispute that Bose Lifestyle discloses this claim

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(b) Obviousness – POSITA

908. In the alternative, this claim element discloses nothing more than overlapping speaker groups, which would have been obvious to a person of skill in the art at the time. Indeed, the Bose LifeStyle already disclosed having groups and dynamic reallocation of those groups, which indicates to a person of skill in the art that overlapping group membership is desirable, consistent with Sonos’s arguments in its summary judgment briefing. A POSITA would have been motivated to add overlapping groups because Bose LifeStyle’s own marketing materials touted the flexibility of its system to allow users to play back media throughout their household. *Supra*.

909. A person of skill in the art would have recognized that by allowing a user to create speaker groups, those groups may either (1) allow overlapping group membership or (2) not allow overlapping group membership. Given that allowing overlapping group membership may be attractive to certain users because there was a recognized “need for dynamic control of the audio players as a group,” it would have been obvious to select allowing overlapping group membership when implementing speaker groups. ’885 Patent at 1:30-34.

(c) Obviousness – Nourse

910. A person of skill in the art would also have been motivated to combine the Bose LifeStyle with Nourse, which discloses a plurality of speakers, each of which has “a unique 16-bit address.” Nourse, 3:57-58. “Each of the speakers also can be assigned up to four group identifiers.” *Id.* at 3:58-59. The group identifier “allows specific speakers to be assigned to a group and receive the same signal.” *Id.* at 3:61-63. Thus, any speaker “can be assigned to more than one group.” *Id.* at 4:5. Nourse is analogous to the ’885 patent because it is in the same field of endeavor, “controlling or manipulating a plurality of multimedia players in a multi-zone system.” ’885 Patent, 1:30-34. For example, Nourse, like the ’885 patent, explains that it is directed to “a centralized speaker system that allows multiple speakers connected to a central amplifier speaker

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line to be monitored and controlled from a central location via a master/slave protocol.” Nourse at Abstract. Nourse is also reasonably pertinent to the problem to be solved by the ’885 patent, which is “dynamic control of the audio players as a group.” For example, Nourse explains that speakers may be “addressed individually or as part of a group” by “receiving unique content specific, respectively, to the individual remote speaker address and group address” (*id.* at 2:35-39) where the group address or identifier “allows specific speakers to be assigned to a group and receive the same signal” and play back audio as a group (*id.* at 3:61-63). Nourse teaches additional means for improving the user experience by allowing a user to add a playback device to multiple groups. Nourse at 3:57-4:5. It would have been desirable to allow a user to have a particular zone player join multiple groups (e.g., the kitchen and patio could be grouped for outside entertainment, and the kitchen and living room could be grouped for inside entertainment). Having a speaker join multiple groups would increase the number of customized combinations a user could configure in their home, as the Bose LifeStyle recognizes as an important feature. Nourse is also analogous to the Bose LifeStyle system as both relate to digital speaker systems with dynamic grouping features.

(d) Obviousness – Rajapakse (US 8,239,559)

911. A person of skill in the art would have found it obvious to combine Rajapakse with Bose LifeStyle. Rajapakse was cited by many Sonos patents regarding speaker grouping, including patents from the same family as the ’885 Patent, indicating that persons of skill in the art recognized that Rajapakse was highly relevant to the claimed features. For example, Mr. Lambourne in prosecuting US 2013/0251174 disclosed Rajapakse as relevant prior art. 2014-04-17 Information Disclosure Statement. Rajapakse was also cited by the following patents—which are closely related to the ’885 patent.

US20130251174A1	Sonos, Inc.	Controlling and manipulating groupings in a multi-zone media system
US8788080B1	Sonos, Inc.	Multi-channel pairing in a media system

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US9226087B2	Sonos, Inc.	Audio output balancing during synchronized playback
US9226073B2	Sonos, Inc.	Audio output balancing during synchronized playback
US9456279B1	Google Inc.	Automatic control and grouping of media playback devices based on user detection
US9671997B2	Sonos, Inc.	Zone grouping
US9729115B2	Sonos, Inc.	Intelligently increasing the sound level of player
US10209948B2	Sonos, Inc.	Device grouping
US10306364B2	Sonos, Inc.	Audio processing adjustments for playback devices based on determined characteristics of audio content
US10331399B2	Apple Inc.	Smart audio playback when connecting to an audio output system
US10356526B2	Razer (Asia-Pacific) Pte. Ltd.	Computers, methods for controlling a computer, and computer-readable media
US10516718B2	Google LLC	Platform for multiple device payout
US11265652B2	Sonos, Inc.	Playback device pairing

912. Rajapakse discloses this claim element.

913. For example, Rajapakse discloses dynamic playback among many speakers in groups. 13:41-45 (“There may be multiple streams of audio being sent to multiple media renderers 203 in multiple zones at the same time. . . As an example, a media renderer may be the front left channel when a movie is being played to a screen that is centered between it and the front right. This would be configured as default movie stream. This same media renderer may be configured also to be the back left channel when playing a default HiFi audio stream, where hi performance front media renderers are positioned elsewhere in the room.”).

914. Rajapakse also discloses synchronized playback in speaker groups. 11:60-65 (“The rendition of each stream by a media renderer 203 (speaker) needs to be synchronized in time. This is enabled by the distribution server 204 working with the media renderer 203, using a stream protocol specific to the media renderers 203. This protocol includes the methods to time-synchronize rendition of the stream.”).

915. Rajapakse discloses dynamic grouping and transitioning speakers among different groups. 3:65-67 (“If the user and media source 101 move to the dining room that also has a set of destination devices 103 present, it is desirable for music playback from the media source 101 to

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transition to this new set of destination devices 103 automatically and without interruption.”).

916. Rajapakse discloses that each player/speaker may be a part of multiple groups. 4:47-54 (“Each media renderer 203 is set up with a variety of properties including lists of acceptable zone identifications, acceptable zone manager identifications, acceptable zone 50 control point identifications, lists of acceptable stream identifications, rendition properties such as volume and role properties.”).

917. Rajapakse discloses having many properties for players within a speaker group and therefore discloses “zone scenes.” 4:53-67 (“One of these properties, the 'role' of a media renderer 203, can define what stream channel the media renderer 203 will 55 play back. Each audio data stream may include multiple channels, where each channel is defined as front left, center, front right, back left, back center, back right, subwoofer, etc. The media renderer 203 can be configured to accept one of the channels in the stream. If the stream does not contain the channel the media renderer 203 is configured for, it may be configured to play an alternate channel or not play anything. In addition to the channel type roles, a media renderer's role may include other 'roles.' A media renderer's role could be to play only deep base sounds, or to play only high pitch sounds in the media. As another example, a media renderer's role may be to provide special effects, such as echoes or background sounds. As a further example, a media renderer's role may be to play pre-recorded media segments at various points of the media stream. For example, a media renderer 203 may play pre-recorded media segments on initiation by a control point or zone manager, or based on sensing various states or conditions, such as powering up the media renderer, or detecting a sensor condition.”).

918. Rajapakse discloses overlapping groups or zones, and therefore overlapping speakers within those zones. 5:61-67 (“A zone is a physical space that a number of mediarenderers belong to and within which the media renderers are physically located. Typically a zone is a

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listening space, a space where the audio from all the media renderers in the space can be heard. For example, all media renderers within a single auditorium will be in the same zone. Zones may overlap and may include other zones.”).

919. Rajapakse discloses that speakers may be a member of more than one group. 6:1-4 (“Each media renderer 203 is assigned to one or more zones. Zones are typically identified with a Zone Identifier (ZID).”).

920. Rajapakse discloses dynamic zone and speaker management. 6:6-19 (“The zone manager 210 dynamically gathers and aggregates information on the media renderers 203 in its vicinity and makes this information available to other services. . . . In addition to gathering media renderer information, the zone manager 210 holds information specific to a zone, manages the media renderers 203 in the zone, and may provide additional services and actions, such as media renderer reservation to other services such as control points 201. . . . The zone control point 209 is an enhanced version of a standard control point 201. The enhancements allow the zone control point 209 to interact with the zone manager 210 to quickly gather information on sets of media renderers 203 in a zone and perform actions on the zone.”).

921. Rajapakse discloses zone management that is dynamic. 12:51-59 (“Once a zone manager 210 registers a media renderer 203, the zone manager 210 may view and modify the media renderer's setup by interacting with a user directly or via a control point 201. This includes modifying the media renderer's zone list, default stream list, role, and properties such as volume.”).

(e) Obviousness – Millington

922. A person of skill in the art would have been motivated to combine Millington with the Bose LifeStyle because Mr. Millington worked on Sonos products that are in the same field of endeavor as the Bose LifeStyle, and therefore it would have been an obvious choice to look to for guidance about potential modifications to that system. Mr. Millington’s patents also described

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aspects of the Sonos System or aspects related to how those systems practice group synchronization and therefore a POSITA would have looked to Millington to understand the Sonos System or its competitors, like Bose LifeStyle. Millington was also assigned to Sonos and was filed in the same timeframe as the Sonos System was released.

923. Millington discloses this claim element.

924. Millington discloses standalone speakers and synchronous groups. Millington at 6 (“In the following, the term "synchrony group" will be used to refer to a set of one or more zone players that are to play the same audio program synchronously. Thus, in the above example, zone players 11(1) and 11(2) comprise one synchrony group, zone player 11(3) comprises a second synchrony group, zone players 11(4) and 11(5) comprise a third synchrony group, and zone player 11(6) comprises yet a fourth synchrony group. Thus, while zone players 11(1) and 11(2) are playing the same audio program, they will play the audio program synchronously.”); *Id.* (“Similarly, while zone players 11(4) and 11(5) are playing the same audio program, they will play the audio program synchronously.”).

925. Millington discloses using dynamic groups. Millington at 7 (“In the network audio system 10, the synchrony groups are not fixed. Users can enable them to be established and modified dynamically. Continuing with the above example, a user may enable the zone player 11(1) to begin providing playback of the audio program provided thereto by audio information source 14(1)(1), and subsequently enable zone player 11(2) to join the synchrony group. Similarly, a user may enable the zone player 11(5) to begin providing playback of the audio program provided thereto by audio information source 14(5)(2), and subsequently enable zone player 11(4) to join that synchrony group. In addition, a user may enable a zone player to leave a synchrony group and possibly join another synchrony group. For example, a user may enable the zone player 11(2) to leave the synchrony group with zone player 11(1), and join the synchrony group with zone player

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11(6). As another possibility, the user may enable the zone player 11(1) to leave the synchrony group with zone player 11(2) and join the synchrony group with zone player 11(6). In connection with the last possibility, the zone player 11(1) can continue providing audio information from the audio information source 14(1)(1) to the zone player 11(2) for playback thereby.”); Millington at 41 (“The system is such that synchrony groups are created and destroyed dynamically, and in such a manner as to avoid requiring a dedicated device as the master device.”).

926. Millington discloses overlapping speaker groups. Millington at 17 (“As noted above, there may be multiple synchrony groups in the network audio system 10, and further that, for example, a zone player 11(n) may operate both as a master device 21 or a slave device 22(g) in one synchrony group, and as the audio information channel device 23 providing audio and playback timing information and clock timing information for another synchrony group.”); Millington at 19 (“Indeed, it will be appreciated that the zone player that is utilized as the audio information channel device for synchrony group 20(2) may also be a zone player that is utilized as the master device 21(1) or a slave device 22(1)(1),..., 22(K)(1) in the synchrony group 20(1).”).

927. I also incorporate by reference into this section, my rebuttals to Dr. Almeroth’s opinions, as articulated above.

(ii) *Limitation 1.8: “after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;”*

928. In my opinion, Bose Lifestyle discloses this claim limitation, and I incorporate my analysis from the previous claim limitations.

929. For example, Bose LifeStyle discloses adding additional zones or rooms to the media center, and then programming each room to be a certain frequency. Put another way, Bose LifeStyle allows a user to add additional speakers to zones of the Bose media center, and if any

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I, Dan Schonfeld, declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

A handwritten signature in black ink that reads "Dan Schonfeld". The signature is written in a cursive style, with the first name "Dan" and last name "Schonfeld" clearly legible. The signature ends with a large, circular flourish.

DATED: November 30, 2022

Dan Schonfeld, Ph.D